

## 1.0 EXECUTIVE SUMMARY

The City of De Soto, Kansas (City) retained Shafer, Kline & Warren, Inc. (SKW) to develop a wastewater master plan for the City of De Soto, Kansas. During the development of this plan, existing and field acquired data were utilized to evaluate the City's wastewater collection and treatment system based on current and future development within the City. This report will document the findings and recommendations based on the study of the wastewater collection and treatment system.

Public participation was an important part of the study. Citizens were given information concerning the study through City Council, Planning Commission meetings, and through special meetings held before the City Council and Planning Commission meetings during the study period. Citizens were allowed to comment on issues regarding the study at these meetings.

The existing wastewater collection system was evaluated and found to be in good condition. This report recommends that the City implement a yearly maintenance and renewal program for the wastewater collection system.

Growth patterns for the City were analyzed based on the Comprehensive Plan. The study found that the majority of new growth around the City would occur to the south and west of the current city limits.

The existing wastewater treatment facility (WWTF) was found to be at the end of its useful life, and it was recommended that the City construct a new WWTF. A combination of several different options were explored for a new WWTF. Different locations for a new WWTF, as well as different treatment technologies were evaluated. The recommended alternative was to construct a new WWTF on the northwest side of De Soto. This recommendation was based on long term cost effectiveness, impact on surrounding neighborhoods, and impact on future development.

Preliminary design and construction cost estimates were developed for recommended capital improvements. Recommendations and preliminary cost estimates should be used for master planning purposes only and not interpreted as final design. The City should prepare detailed designs for each project and use this study to determine approximate flows and loads, to provide initial structure sizing, and to obtain background information.

## **2.0 INTRODUCTION**

### **2.1 PURPOSE**

This wastewater master plan was prepared at the request of the City of De Soto, Kansas (City) to identify and to prioritize necessary wastewater system capital improvements based on current projections for development. This report will also look at De Soto's current service demands as well as review and compare planning projections from the Comprehensive Plan completed in 2004 by Bucher, Willis & Ratliff Corporation.

### **2.2 SCOPE**

The wastewater master plan was developed according to the following scope of services:

1. **Project Development:** Draft a public involvement plan, conduct a kick-off meeting with City staff and submit meeting minutes, prepare and submit public information to City staff, and conduct a stakeholder workshop and assemble a stakeholder team.
2. **Data Collection:** The following activities were completed to collect data on the existing wastewater collection and treatment system:
  - Facility Assessments – Visit each of the ten (10) pump stations and the wastewater treatment facilities to obtain facility data and complete a condition assessment,
  - Collection System Investigation – Review the history of system work and rehabilitation records, review video tapes of approximately 10% of the gravity collection system to assess system condition, inspect approximately 15% of the system manholes (non-entry) to assess system condition, and draft a condition assessment summary,
  - Review the current sewer budget, rate structure, and re-investment practices in the sewer system,
  - Conduct demographic research with a focus on the watershed, using census data, indices, etc.,
  - Conduct demographic research of adjacent areas for potential development,
  - Investigate potential interchange with related governmental entities - contact / meet with Johnson County Wastewater, and contact / meet with City of Olathe,
  - Investigate the potential for inter-utility cooperation – draft a plan for a joint-use treatment facility,
  - Assess impacts of regulatory issues and requirements of KDHE, EPA, and OSHA on the wastewater system and proposed capital improvements,
  - Prepare and submit a progress report and conduct a meeting with City staff,
  - Prepare a one page summary of the data collection activities with a presentation to City Council.
3. **Planning Projections:** The following activities were completed to assess the potential growth coordinated with the Comprehensive Plan:

- Evaluate and compare growth factors and areas,
  - Project growth patterns,
  - Develop wastewater unit flow and area flow projections,
  - Coordinate projected flow patterns with Comprehensive Plan,
  - Prepare a summary, maps of growth areas and densities,
  - Meet with Planning Commissioners and City staff to review maps and forecasts,
  - Prepare a one page summary of the planning projection activities with a presentation to City Council.
4. Option Development: The following activities were completed to develop options for wastewater treatment:
- Develop list of possible options (limited to five),
  - Evaluate system expansion into selected areas (within present City limits and SAAP),
  - Prepare concise summaries of options (limited to five),
  - Meet with City staff and City Council to review and select the most feasible options (limited to three),
  - Develop sub-options regarding the collection system and treatment processes,
  - Assist with conducting one public meeting to review and receive comments on the key options,
  - Refine the key options with associated project cost estimates and prepare a rate evaluation,
  - Prepare and submit a progress report and conduct a meeting with City staff.
5. Report Preparation: The following activities were completed to prepare and submit the findings of the wastewater master plan study:
- Present the findings, recommendations and the selected options,
  - Compare the economic and non-economic factors for each of the selected options,
  - Describe the relationship of the sewer master plan study to the Comprehensive Plan,
  - Submit six (6) copies of the draft study report,
  - Collect / receive input and review comments from City staff, officials, City Council, and the public,
  - Prepare and submit ten (10) copies of the final study report (including QA/QC).